

# Rock Cycle

- ♦ Objective: I will learn the stages of the rock cycle, and learn how one type of rock can transform into another type of rock.

# Weathering

- ♦ The process of breaking down rocks.



# Two types

- ◆ Physical: breakdown of rock into smaller pieces by mechanical means, such as water, wind, or ice.
- ◆ Chemical: the decomposition of rock by the chemical breakdown of minerals. Examples include when a rock is dissolved by water or when oxygen reacts with iron in a rock to form rust.

# Procedure I

- ◆ Using the sharpener, shave the crayons into piles keeping the colors separate. Place the piles on separate pieces of wax paper. You are modeling rock weathering.

# Erosion and Deposition


- ♦ Erosion: the movement of weathered materials. The materials are transported by water, wind, and ice.
- ♦ Sediment: layers of loose materials.
- ♦ Deposition: when loose materials accumulate.
- ♦ Stratification: when different types of sediment cover each other and layer.

# Procedure II

- ◆ Put a sheet of aluminum foil on your work area.
- ◆ In the center of the foil each student in your group should drop his or her "rock fragments", one at a time, piling them on top of each other. When all fragments are deposited, observe the pile carefully.
- ◆ Carefully fold the foil over the fragments and save for part three.

# Lithification and Sedimentary Rock


- ♦ Lithification: Two Parts;
- ♦ Compaction: reduces the size and number of spaces between fragments.
- ♦ Cementation: “glues” the fragments together. Minerals dissolved in water will crystallize and act as the “glue” when water evaporates.

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- ♦ Sedimentary Rocks: rocks are weathered into sediments, sediments are deposited, layered, compacted by pressure and cemented by minerals.




# Procedure III

- ◆ Put the foil package between two pieces of plywood.
- ◆ Have the lightest student step onto the board.
- ◆ Carefully open the foil and observe the sedimentary rock.

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- ◆ Remove a small piece of the sedimentary rock. Put the small piece in a baggie. The remainder should be left in the foil package and saved for part 4.

# Procedure IV

- ◆ Place the foil between two pieces of plywood. Have the tallest person in your group stand on the board.
- ◆ Bring the foil package to the teacher. They will place it on the hot plate and return it to you (use tongs to carry hot foil).

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- ◆ Metamorphic rocks: “changed rocks”. Metamorphic rocks were igneous or sedimentary but changed due to great heat and/or great pressure. Baked rock does not melt, but it does change. It forms crystals. If it has crystals already, it forms larger crystals.

# Procedure IV +

- ◆ Repeat until everyone in your group has a chance to step on the boards.
- ◆ Allow the foil package to cool and answer your questions while waiting.
- ◆ Open the foil and observe your "metamorphic" rock.
- ◆ Save a piece and put it in your baggie, then close the foil for part five.

# Igneous Rocks

- ♦ Igneous rock: formed from the cooling and solidification of molten rock (magma or lava).
- ♦ Intrusive igneous rock: cooled below the surface of the earth.
- ♦ Extrusive igneous rock: cooled on the surface of the earth.

# Procedure V

- ◆ Bring your foil to the teacher.
- ◆ It will be placed on the hot plate.
- ◆ When it is returned to you (use tongs) let it cool while you answer questions.
- ◆ Open the foil, open your baggie, observe the sedimentary, metamorphic, and igneous "rocks".